

High-Power Tunable SeedLaser for Methane LIDAR Transmitter, Phase I

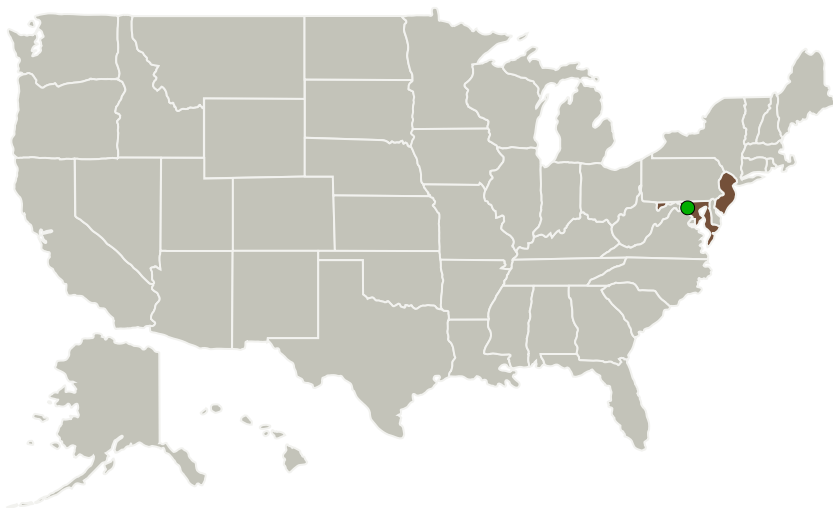
Completed Technology Project (2015 - 2015)



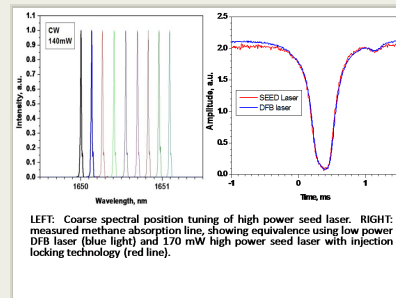
Project Introduction

Growing interest in precise measurements of methane concentration and distribution in the Earth's atmosphere is stimulating efforts to develop LIDAR systems in the spectral region of 1.65 μm utilizing Path Differential Absorption techniques. The key element of such systems is a high energy optical source with good beam properties operating in the vicinity of a methane absorption line. A number of very promising architectures for designing high energy lasers at 1651 nm have been described recently, but the performance of the lasers developed in these earlier efforts has been limited by the lack of a sufficiently high-power tunable seed laser. For this SBIR Phase I program, we propose to develop a robust seed laser that is fiber-coupled, narrow linewidth, tunable, highly reliable, compact, and which ultimately will allow the realization of much higher performance high energy laser sources designed for methane detection.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Princeton Lightwave, Inc.	Lead Organization	Industry	Cranbury, New Jersey
 Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



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Primary U.S. Work Locations

Maryland

New Jersey

Project Transitions



June 2015: Project Start



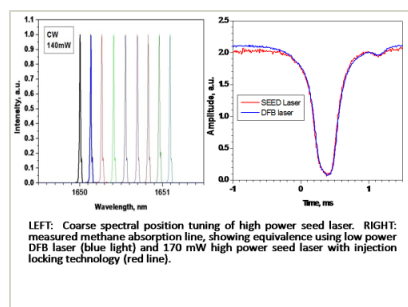
December 2015: Closed out

Closeout Summary: High-power tunable seed laser for methane LIDAR transmitter, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/138948>)

Images



Briefing Chart Image

High-power tunable seed laser for methane LIDAR transmitter, Phase I

(<https://techport.nasa.gov/image/136677>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Princeton Lightwave, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Igor Kudryashov

Co-Investigator:

Igor Kudryashov

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Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System